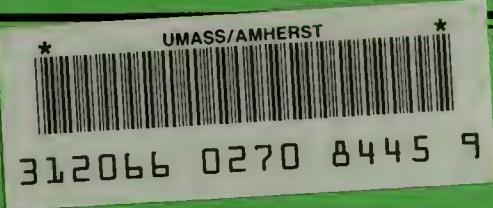


MASS. EA24.2: Sm 18



Small **Q**uantity **G**enerator

W o r k b o o k

*A Self-Help Guide for Small Quantity
Generators of Hazardous Waste
in Massachusetts*



Daniel S. Greenbaum
Commissioner
DEQE

Michael S. Dukakis
Governor

John P. DeVillars
Secretary
EOEA

**The Massachusetts Department of Environmental Quality Engineering
Division of Hazardous Waste**

#15
\$3.10

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Peg Carson, Lynne Doty, Craig Goff, Rosemary Healey,
Rachel Tepper, Rick Johnson and Bill Sirull.*



The Commonwealth of Massachusetts

Executive Office of Environmental Affairs

Department of Environmental Quality Engineering

One Winter Street, Boston, Mass. 02108

Daniel S. Greenbaum
Commissioner

April 10, 1989

Dear Small Quantity Generator:

This workbook is written especially for Small Quantity Generators, commonly called SQGs. Every business, school and other operation that monthly produces between 220 and 2200 pounds of hazardous waste is an SQG. The concepts presented here will also be useful to very small quantity generators; however, large generators will need more information.

As a guide to hazardous waste management, the workbook takes a self-help approach. It consists of question/answer scenarios, "what if" situations, exercises and sample labels, check lists and forms. The workbook is not a substitute for the Massachusetts Hazardous Waste Regulations, 310 CMR 30.000. The regulations are available for a small fee through the Massachusetts State House Bookstores at (617) 727-2834 or (413) 733-7876.

SQGs often call the Department of Environmental Quality Engineering with questions on hazardous waste. The workbook is organized in short sections that give the answers to typical questions and explain the next steps you should take. The answers are general. For more detail on your specific requirements, see the appendix or contact the Division of Hazardous Waste, Industry Assistance Line at (617) 292-5898.

Requirements for generators occasionally change. It is your responsibility to remain updated. Putting your workbook in a three-ring binder will make updating easy when new inserts are developed.

Preventing wastes, whenever possible, makes good business sense. But, for those wastes you must generate, use this guide. Write in it, copy it, share it with your employees and colleagues. Work through the following pages to begin a hazardous waste management program that will protect health, property and the environment.

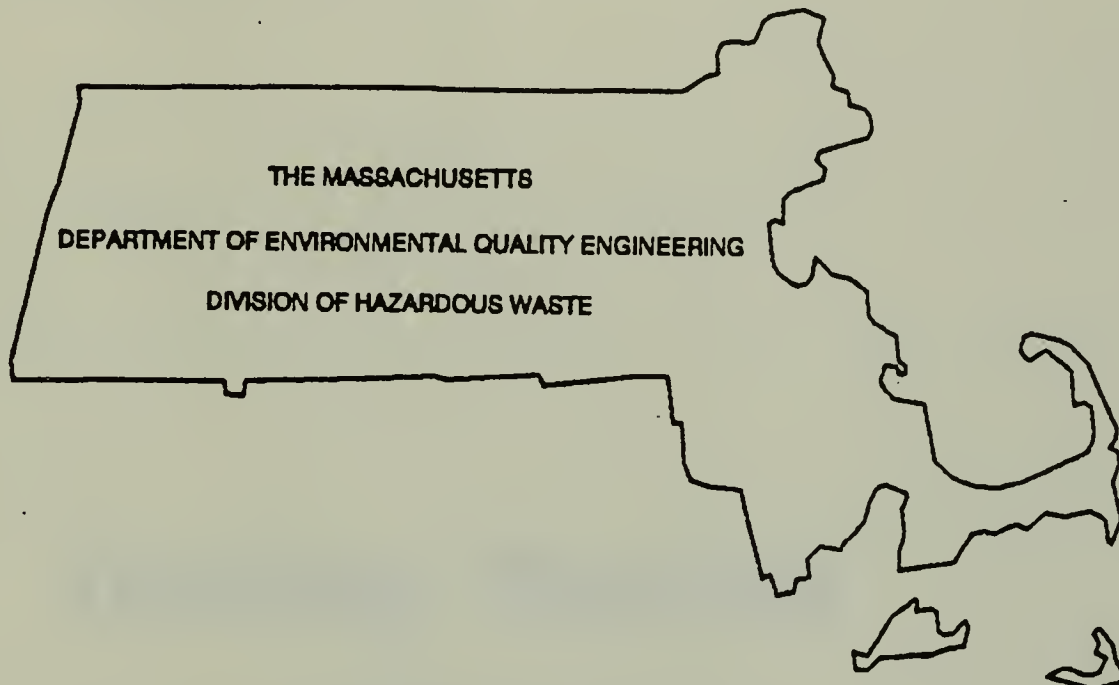
Sincerely,

A handwritten signature in cursive script, appearing to read "Daniel S. Greenbaum".

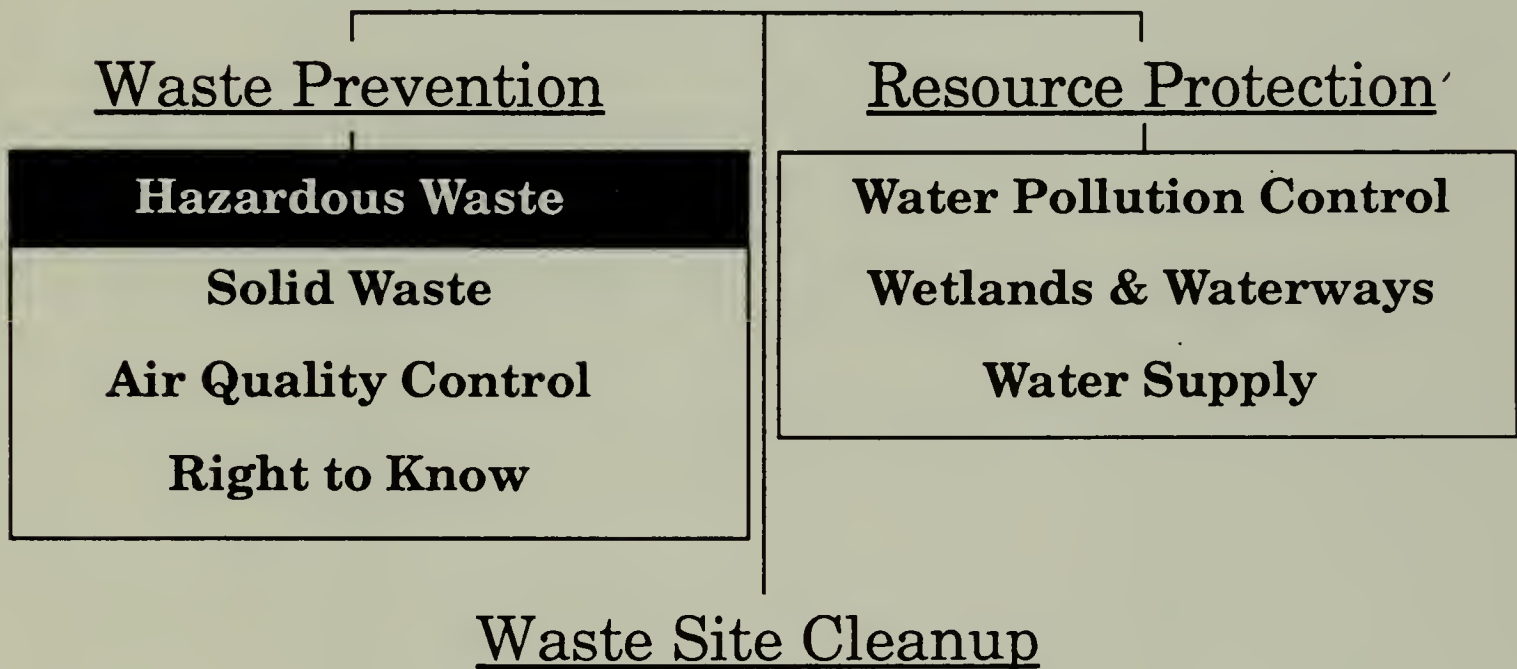
Daniel S. Greenbaum
Commissioner

Who Regulates My Hazardous Waste?

The Massachusetts Department of Environmental Quality Engineering (DEQE)
Division of Hazardous Waste (DHW)



DEQE Programs



Massachusetts Hazardous Waste Regulations include all federal Environmental Protection Agency (EPA) requirements *and more*. Massachusetts is more strict in belief that a densely populated, heavily industrialized state with shallow groundwater must take extra precautions.

Getting Started

What Should I Do?

If you think you may be a Small Quantity Generator of Hazardous Waste, you should:

1. Identify your hazardous wastes
2. Reduce your hazardous wastes, if possible
3. Determine if you are a Large, Small, or Very Small Quantity Generator
4. Notify the DEQE Division of Hazardous Waste and apply for an identification number
5. Set up a hazardous waste accumulation area
6. Label and monitor your hazardous waste
7. Hire a hazardous waste transporter to pick up your waste
8. Keep records of your waste and its disposal


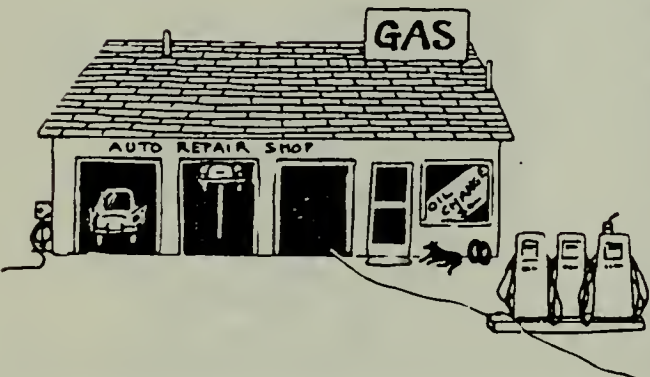
NOTE: You may be asking yourself "How will I manage to do all this?" Read on. This workbook covers all of these activities and will guide you through the different steps.

Do I Have Hazardous Waste?

A waste is any solid, liquid, or contained gaseous material that you no longer use, and either dispose of or recycle. Wastes that could cause injury or death, or damage or pollute the land, air or water are considered hazardous wastes.

If your business appears on the table below, you probably generate hazardous waste. Information to help you classify this waste appears in Appendix A.

Typical Small Quantity Generators And Their Wastes

Type of Business	Types of Hazardous Waste Generated
Building Cleaning and Maintenance	Corrosives Ignitable Wastes Solvents
	Boatyards and Marinas
Construction	Heavy Metals/Inorganics Ignitable Wastes Oils Solvents PCBs
Educational and Vocational Shops	Corrosives Ignitable Wastes Reactives Oils Solvents
	Equipment Repair
Formulators	Corrosives Ignitable Wastes Oils Solvents PCBs Cyanide Wastes Heavy Metals/Inorganics Reactives

Type of Business

Types of Hazardous Waste Generated

Funeral Services

Solvents
Formalin Solutions



Furniture Manufacturing and Refinishing

Corrosives
Ignitable Wastes
Solvents

Laboratories

Corrosives
Heavy Metals/Inorganics
Ignitable Wastes
Reactives
Solvents

Laundries and Dry Cleaners

Dry Cleaning Filtration
Residues and Filters
Solvents



Metal Manufacturing and Finishing

Corrosives
Cyanide Wastes
Heavy Metals/Inorganics
Ignitable Wastes/Reactives
Solvents
Spent Plating Wastes

Printing and Allied Industries

Corrosives
Heavy Metals/Inorganics
Ink/Paint Sludges
Spent Plating Wastes
Solvents



Vehicle Maintenance

Corrosives
Heavy Metals/Inorganics
Ignitable Wastes
Oil
Solvents

NOTE: This list gives examples of SQGs. Even if your type of business is not listed, you may have hazardous waste. Read on.

What Makes My Waste Hazardous?

Your waste is hazardous if it has any of the *four hazardous characteristics*, or if it appears as a *listed waste* in the Massachusetts Hazardous Waste Regulations.

Characteristic Hazardous Wastes

Review the following questions for each waste in your operation. If you answer YES to any question, you have a characteristic hazardous waste. (Appendix A gives the legal definitions for each characteristic.)



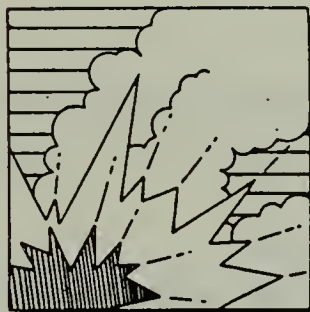
Y N

Ignitable?

Does the waste catch fire easily?

Is a flammable warning label on the original container?

Examples are paint wastes, certain spent solvents and degreasers, waste epoxy resins and metal dusts.



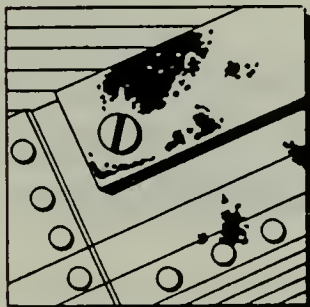
Reactive?

Could the waste easily explode?

If mixed with water, would it create poisonous fumes?

Is a reactive warning label on the original container?

Examples are cyanide plating wastes, waste bleaches and other waste oxidizers



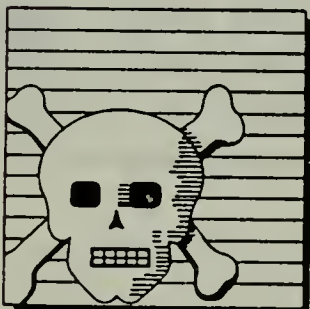
Corrosive?

Would the waste dissolve a metal container?

Would it burn your skin?

See your *Material Safety Data Sheet (MSDS)*.*


Examples are some rust removers, waste acid or alkaline degreasers, waste battery acid.



EP Toxic?

Does the waste contain silver, arsenic, barium, cadmium, chromium, lead, mercury, or selenium? In certain concentrations these heavy metals are released from wastes and may contaminate groundwater. See the ingredients on the container or the MSDS.

Examples are X-ray and photographic wastes, dusts, wastewater treatment sludges, and some waste inks, paints and paint chips.

If your waste is not characteristic, let's find out if it is **Listed**. 

*For information about the Material Safety Data Sheet (MSDS), see page 7

Listed Wastes

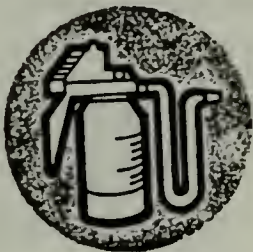
The Massachusetts Hazardous Waste Regulations list more than 400 hazardous wastes. The most common ones are included in Appendix A of this workbook. For more information, refer to the full set of Regulations, sections 30.130 - 30.136. You may also call the DHW office located in your region or the Industry Assistance Telephone Line (see page 53 for telephone numbers.)

Lists of Hazardous Wastes



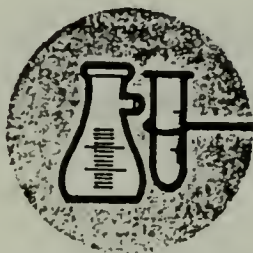
Non-Specific Wastes

Generic wastes from common manufacturing and industrial processes such as degreasing parts and changing oil.



Source-Specific Wastes

Wastes from specific industries like wood preserving and ink formulating.



Commercial Chemical Products

Specific products such as creosote, as well as some pesticides and chemicals.

Acutely Hazardous Wastes

The more dangerous products and chemicals. Even in small amounts they are regulated in the same way as large amounts of other hazardous wastes.

NOTE: If you produce more than 2.2 pounds of acutely hazardous waste in a calendar month or ever store more than that amount, you are subject to all of the regulations that apply to Large Quantity Generators; you cannot qualify as an SQG.

Keep in mind

If you are allowing hazardous waste to evaporate, to go in the trash, on the ground, or down a drain, *it is against the law*. Your waste must be collected and disposed of in a special manner.

What Is a Material Safety Data Sheet ?

A Material Safety Data Sheet, MSDS, is an information sheet that describes the health effects and safe uses of a hazardous product. It can help you identify the hazardous characteristics and ingredients of your original product. If the product is hazardous, the waste is probably hazardous.

Material Safety Data Sheet
May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

U.S. Department of Labor
Occupational Safety and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1218-0072

IDENTITY (As Used on Label and List)
Note: Blank spaces are not permitted. If any item is not applicable or no information is available, the space must be marked to indicate this.

Section I
Manufacturer's Name
Address (Number, Street, City, State, and ZIP Code)
Emergency Telephone Number
Telephone Number for Information
Date Prepared
Signature of Preparer (printed)

Section II - Hazardous Ingredients/Identity Information
Hazardous Components (Specific Chemical Identity, Common Names): OSHA PEL ACGIH TLV Other Limits Recommended by AHA?

Section III - Physical/Chemical Characteristics
Boiling Point Specific Gravity (H₂O = 1)
Vapor Pressure (mm Hg) Melting Point
Vapor Density (AIR = 1) Evaporation Rate (Buret Access = 1)
Solubility in Water
Appearance and Color

Section IV - Fire and Explosion Hazard Data
Flash Point (Method Used) Flammable Limits
Extinguishing Media
Special Fire Fighting Procedures
Unusual Fire and Explosion Hazards

Section V - Reactivity Data
Stability
Incompatibility (Materials to Avoid) Conditions to Avoid
Hazardous Decomposition or Byproducts
Hazardous Polymerization May Occur
W/ H₂O Occur

Section VI - Health Hazard Data
Routes of Entry
Health Hazards (Acute and Chronic) Irritation?
Carcinogenicity: NTP? IARC Monographs? OSHA Required?
Signs and Symptoms of Exposure
Medical Conditions Generally Aggravated by Exposure
Emergency and First Aid Procedures

Section VII - Precautions for Safe Handling and Use
Waste Disposal Method
Precautions to Be Taken in Handling and Storing
Other Precautions

Section VIII - Control Measures
Respiratory Protection (Specify Type)
Ventilation: Local Exhaust Mechanical (General)
Protective Gloves
Other Protective Clothing or Equipment
Work Hygiene Practices
Eye Protection: Special, Other

(Reproduce locally) OSHA 174, Sept. 1985

The Massachusetts Right to Know Law requires businesses to keep MSDSs for hazardous products on file and to provide them for employees upon request.

To obtain the MSDS, call the manufacturer or distributor of your product. If you do not know the manufacturer, call the Chemical Manufacturer's Association for help at (202) 887-1100 or (800) CMA-8200 with the information from the container label.

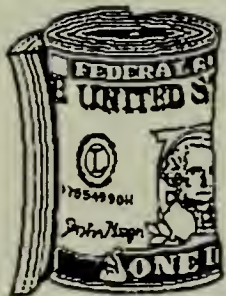
For copies of Understanding MSDSs, Your Right To Know contact the Right to Know Program, Division of Occupational Hygiene at (617) 969-7177.

Hazardous Waste Reduction and Management

Why Should I Reduce My Hazardous Wastes?

It makes good business sense to reduce the amount of hazardous waste you generate whenever possible, because:

Waste Reduction Pays!



Waste reduction helps:

- Reduce risks to people and the environment
- Cut disposal costs
- Decrease your potential liability for cleanup of mishandled waste

Hazardous Waste Costs Money!

You must pay for:

- Handling
- Storage
- Transportation
- Treatment or Disposal
- Analysis and Reporting
- Insurance Costs
- Potential Liabilities: suits, fines, cleanup of spills or contaminated property.



How Can I Reduce My Hazardous Wastes?

Certainly it is best if you can avoid producing hazardous waste. For wastes you must produce, consider reducing their volume or toxicity, and recycling.

Here are some ways you can do this:

Inventory control

Buy only the amount of product you need. Leftover hazardous products become unnecessary hazardous waste.

Use products that are less hazardous

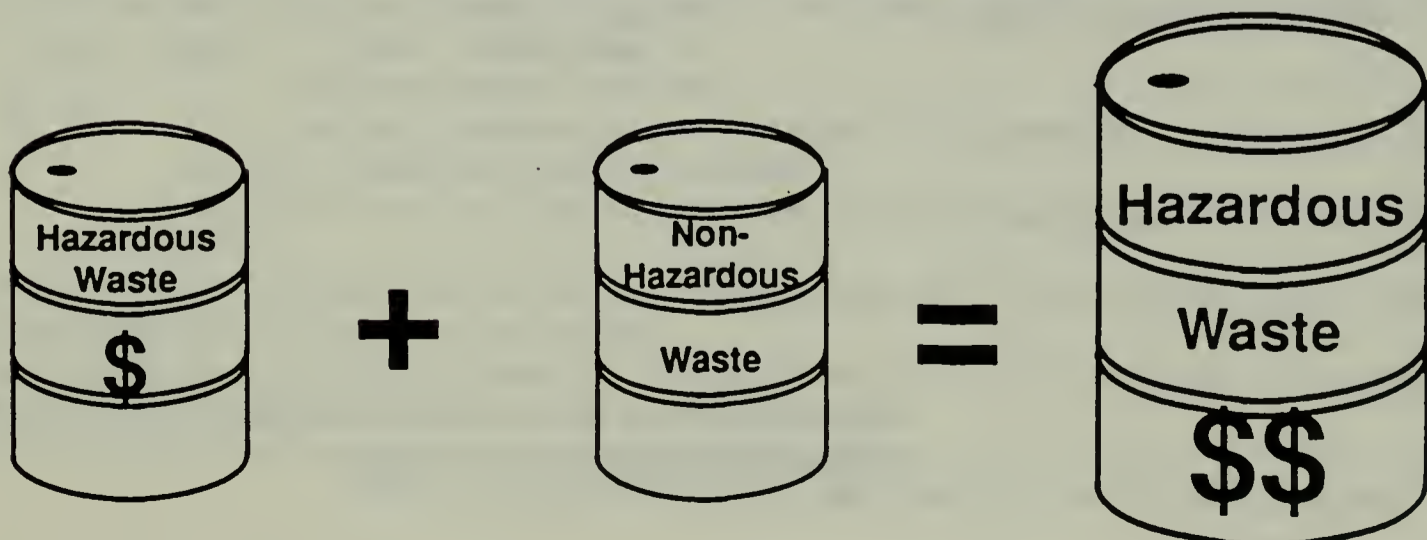
Sometimes a non-hazardous or less hazardous product will do the same job, presenting less risk to you and your employees and costing less in waste disposal fees. For example, water-based paints and cleaners can sometimes replace oil paints and solvents.

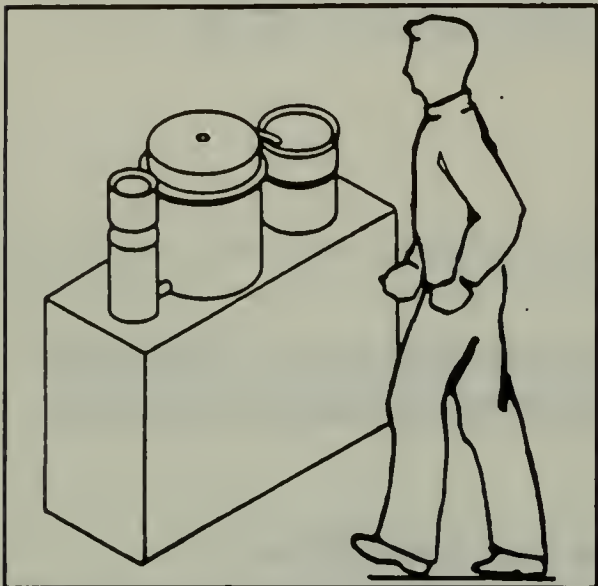
Examine your operating practices to improve efficiency

- Avoid bad batches through quality control
- Prevent spills and leaks
- Schedule production shutdown and cleanup efficiently
- Maintain, calibrate, and modernize equipment to reduce waste
- Train employees to use products and handle wastes properly

Separate your hazardous wastes

Mixing different types of wastes may create more hazardous waste, increase disposal costs, or decrease recycling options. For example, avoid mixing water and antifreeze with used oil.





An on-site solvent recovery unit.

Recycle your waste, if possible

Recycling is saving one Pennsylvania die manufacturer nearly \$5,000 a year*. This company uses 1,1,1 Trichloroethane to degrease machine parts. Before installing an on-site solvent recovery unit, the company sent its used solvent off-site for reclamation. It bought reclaimed solvent at \$.80 per gallon and also some virgin 1,1,1, Trichloroethane at \$4.50 per gallon.

Now the company uses a solvent recovery unit to reclaim solvent on-site at a cost of \$.04 - \$.10 per gallon. The purchase of virgin solvent has dropped from 1,320 to 220 gallons per year.

Find out if your waste can be used by another company

Waste exchange organizations have been formed to help connect hazardous waste generators with other companies that can use the waste as feedstock or substitute materials in their operation. Relatively "pure" wastes that require little processing and surplus hazardous materials are most likely to be exchanged. The exchange of hazardous waste may be regulated. Call the DHW for more information.

Actual listings in a waste exchange catalog:

Wanted

Etching Solutions NE:W10-25
Dissolved copper, copper sulfate solutions free of organics, or copper sulfate crystals from etching operations. Any amt./frequency/pkg. RI.

Available

Hydrochloric NE:A1-110
Hydrochloric acid 20% in water from metal stripping. Contains nickel, chrome and other trace metals. 30-40 55 gal. drums available per month on a continuous basis. Sample available. Orangeburg, NY.

*Example from *Waste Minimization*, Environmental Protection Agency, Oct. 1987

How Much Hazardous Waste Do I Generate?

First you must know what wastes you have. Inventory all activities in your operation and list any wastes they generate. Are they hazardous wastes? Estimate the amount generated in your busiest months. You will use this information later on to determine your generator category.

Sample Inventory - Gas/Service Station

Activity	Waste/Chemical Name	Is It Hazardous? Why?	Monthly Generation
Change oil	oil	Yes - Toxic	225 gallons
Decrease engines	petroleum naptha	Yes - Ignitable	15 gallons
Change antifreeze	ethylene glycol	No *	_____
Replace exhausts	scrap metal	No **	_____
Replace batteries	old batteries	Yes, if leaking or discarded-corrosive	none
Totals:		waste oil:	225 gallons
		acutely hazardous wastes:	None
		other hazardous wastes:	15 gallons

Sample Inventory - Dry Cleaner

Activity	Waste/Chemical Name	Is It Hazardous? Why?	Monthly Generation
Dry Cleaning	Perchloroethylene cartridges or residue	Yes - Toxic	400 pounds
Laundering	Soapy water	No**	_____
Totals:		waste oil:	none
		acutely hazardous wastes:	none
		other hazardous wastes:	400 pounds

- NOTE:**
- Oil contaminated rags that are not professionally dry cleaned for reuse, oily soil, and absorbent materials are hazardous waste.
 - Containers from hazardous materials are considered hazardous waste unless they are empty.

* Antifreeze is not a hazardous waste but must be managed responsibly. You may ship it with a hazardous waste transporter as a non-hazardous waste.

** Some non-hazardous wastes are regulated by other programs at DEQE. For example, discharges to the sewer or air may require a permit.

See the reverse side for an inventory form you can use. 

Hazardous Waste Inventory

Activity	Waste/Chemical Name	Is It Hazardous? Why?	Monthly Generation
----------	---------------------	-----------------------	--------------------

Totals: waste oil: _____
acutely hazardous wastes: _____
other hazardous wastes: _____

What Is My Generator Category?

As a generator of hazardous waste you must determine a generator category to understand what management rules apply to you.

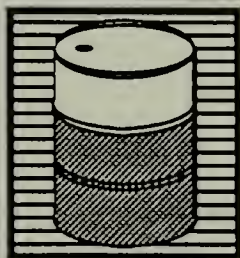
Categories are based on the types and amounts of hazardous waste generated *monthly*. Massachusetts regulations define categories in kilograms.

- 1 kilogram (kg) equals 2.2 pounds.
- 1 gallon of water is about 8.35 pounds

The conversions below to gallons are approximations, based on the weight of water. Some wastes, such as chlorinated solvents, are much heavier, so the kilograms would convert to fewer gallons.

Categories

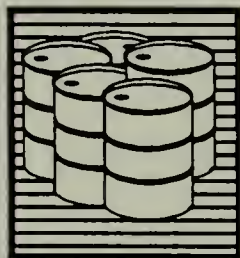
Very Small Quantity Generator (VSQG)



0-100 kgs of hazardous waste per month =
0-220 pounds or about
0-26 gallons

No acutely hazardous waste is allowed.

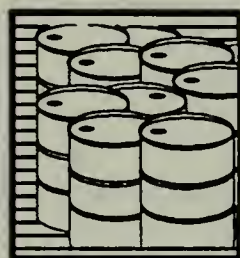
Small Quantity Generator (SQG)



100-1000 kgs of hazardous waste per month =
220-2200 pounds or about
26-265 gallons

Less than 1 kg of acutely hazardous waste is allowed.

Large Quantity Generator (LQG)



Over 1000 kgs of hazardous waste per month =
2200 pounds or more
265 gallons or more

Over 1 kg of acutely hazardous waste is allowed.

Use the information above and your Waste Inventory to fill in the blanks.

My generator category for used oil is _____.

My generator category for other hazardous waste is _____.

If you have used oil plus other hazardous wastes you have a category for each.
If you have acutely hazardous waste or questions on your generator category, call the DHW for assistance.

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
5780 SOUTH CAMPUS DRIVE
CHICAGO, ILLINOIS 60637

CHICAGO, ILLINOIS 60637
CHICAGO, ILLINOIS 60637
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Do I Notify Or Register?

All generators must inform The Division of Hazardous Waste (DHW) of their hazardous waste activities and obtain an **Identification Number** by registering or notifying.

Ask yourself:

In one month do I generate more than 265 gallons of used oil?

YES NO

In one month do I generate more than 26 gallons of other hazardous waste?

YES NO

Do I ever generate acutely hazardous waste?

YES NO



If you answered yes to ANY of the questions - **NOTIFY**.

If you answered no to ALL three questions - **REGISTER**.

If you move or go out of business, let the DHW know.

Identification Numbers are used nationally to track hazardous waste from "cradle to grave" (from where it came to where it went.) You will need an ID number for any transporter or treatment, storage, disposal facility to accept your waste. The ID number will identify your geographic location.

To Notify Or Register Call The DHW at: 1 (800) 343-3420

Let us know:

- Your generator categories for waste oil and hazardous waste
- If you need the notification form or registration card
- Your site address and mailing address

APPLICATION FOR EPA IDENTIFICATION NUMBER
NOTIFICATION OF HAZARDOUS WASTE ACTIVITY IN MASSACHUSETTS

FOR OFFICIAL USE ONLY

EPA ID NUMBER MO DAY YEAR
DATE ISSUED

In order to participate in the hazardous waste manifest system, each generator, recycler, transporter and receiving facility must have a federal identification number, which is assigned by the Environmental Protection Agency (EPA). You should allow up to 6 months for the assignment of this number, which will be mailed to you. For a temporary number, call Massachusetts Division of Hazardous Waste (1-800-343-3420).

For assistance in completing this form, or to report any changes in your activity, call the Division's Compliance Assistance line (617-292-5898).

I. **NAME OF NOTIFYING COMPANY** Do not punctuate. Leave a blank box between initials, as in **A B C C O**

II. **MAILING ADDRESS** Abbreviate Street or similar words.
NUMBER STREET OR PO BOX
CITY OR TOWN STATE ZIP CODE

III. **SITE OF HAZARDOUS WASTE ACTIVITY** Each location with hazardous waste activity needs a separate ID.
NUMBER STREET
CITY OR TOWN STATE ZIP CODE

IV. **STANDARD INDUSTRIAL CLASSIFICATION** A list of common SIC codes is attached, or consult industry fact sheet.
SIC CODE DESCRIPTION SIC CODE DESCRIPTION

V. **CONTACT PERSON** To be telephoned regarding information on this form.
NAME (FIRST, LAST) TITLE TELEPHONE

VI. **OWNERSHIP** Enter the name of the person or corporate entity which is the legal owner of the business, and the same for the property. Check NON-FEDERAL unless your corporation is owned or operated by the federal government.
LEGAL OWNER OF BUSINESS FEDERAL NON-FEDERAL
LEGAL OWNER OF PROPERTY FEDERAL NON-FEDERAL

VII. **DESCRIPTION OF HAZARDOUS WASTES** To complete this item you may need to have your waste analyzed. Consult your industry fact sheet or the Massachusetts Hazardous Waste Regulations - 310 CMR 30.000 - obtained from the State Bookstore, State House, Boston (617/727-2834). Enter a 4-digit code for each of your hazardous wastes. Attach additional sheet if necessary. Transporters are not required to complete this item except for wastes they generate themselves.

Notification Form

Complete one form for each location generating hazardous waste.

Allow a few months to receive the ID Number(s) through the mail.

Call 1-800-343-3420 for a **Temporary ID Number** if you want to ship waste before the permanent ID arrives.

See the appendix for common waste types and the 4-digit codes used to describe them.

COMM OF MASS - DEQE GENERATOR REGISTRATION REVISED JANUARY 1, 1991

DEQ Region: ME CT RI VT

I am registering as: Very Small Quantity Generator of Hazardous Waste (less than 27 gal/month)
 Very Small Quantity Generator of Waste Oil (less than 27 gallons per month)
 Small Quantity Generator of Waste Oil (less than 270 gallons per month)

NAME OF COMPANY _____

MAILING ADDRESS STREET CITY OR TOWN ZIP _____

ADDRESS WHERE WASTE IS PRODUCED TELEPHONE M.A. _____

TYPE OF BUSINESS SIC CODE EPA ID NUMBER (complete if already assigned)

Hazardous Waste Generated: (name)	Gallons per Month Prior to Treatment or Recycling:	Disposal, Storage, Treatment &/or Recycling: (Name company & address where waste is taken or type of treatment on site of generation)
Waste Oil	_____	_____
Solvent	_____	_____
Acid or Alkali	_____	_____
Other: (name)	_____	_____

I CERTIFY UNDER PENALTY OF LAW that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete.

DATE SIGNED NAME OF OWNER OR OPERATOR

KEEP BEHIND COPY

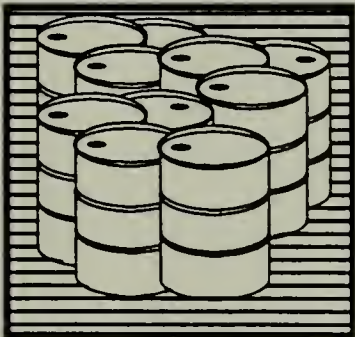
Registration Card

Telephone the DHW to get an **MAV ID Number** over the phone, unless you already have an ID beginning with the letters **MAD**.

How Long May I Store Hazardous Waste? How Much May I Accumulate?

There are limits on how long you may store hazardous waste and on how much you may accumulate at one time. These limits depend on your generator category.

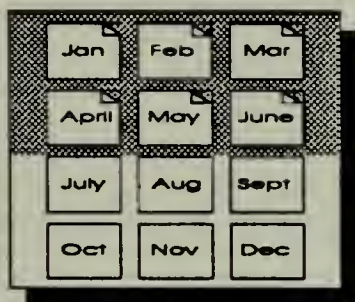
SQG Accumulation Limits



2,000 Kilograms in containers
(about ten, 55 gallons drums)

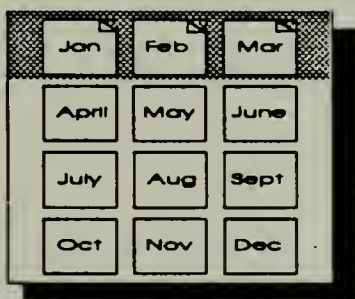
SQGs who keep hazardous waste in tanks, may accumulate a total of 6,000 kgs, of which 2,000 kgs may be in containers (6,000 kgs is about 1,600 gallons.)

OR



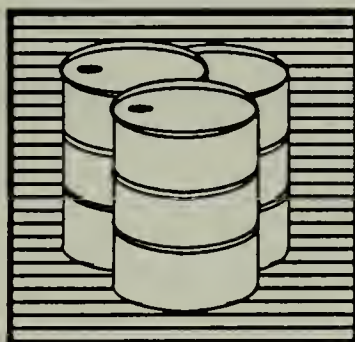
180-day limit.

LQG Accumulation



90-day time limit and no volume limit.

VSQG Accumulation



600 kgs limit (about three, 55 gallon drums) and no time limit.

NOTE: When you reach your time or volume limit, you must have a **licensed hazardous waste transporter** remove the waste. Special exemptions allow Registered VSQGs to transport up to 55 gallons of their own waste to another generator or a disposal facility.

Skip the next page unless you have both used oil and other hazardous wastes.

What Accumulation Limits Apply If I Have Both Hazardous Waste And Used Oil?

Accumulation limits depend on which of your generator categories is larger.

If...

- your hazardous waste category is *larger* than your used oil category, the accumulation limits for the hazardous waste apply.
- **Example:** An SGQ of hazardous waste and a VSQG of used oil may accumulate wastes for 180 days

OR

until the used oil plus other hazardous wastes equal 2000 kgs in containers or 6000 kgs in tanks.

If...

- your hazardous waste category is *smaller* than your used oil category, different accumulation limits apply to the two waste categories.
- **Example:** A VSQG of hazardous waste and an SQG of used oil may accumulate up to 2000 kgs (or 6000 kgs in tanks), of which 600 kgs can be hazardous wastes other than used oil.

There is a 180 day accumulation limit on the used oil, but no time limit on other hazardous wastes.

Accumulation limits for generators with two categories are confusing!
Call the DHW if you have questions.

Keep in mind

Never Mix Used Oil And Other Hazardous Wastes!

Catching Up With Your Waste

Many generators find they have some catching up to do when they learn about the accumulation limits. If you already have more hazardous waste than allowed for your category, or if you have been accumulating waste too long, take the following steps:



- Hire a transporter to remove your waste immediately.

- Obtain a temporary identification number, unless you already have a permanent number.

Call 1 (800) 343-3420

- Start to manage your hazardous waste according to the amount you produce monthly. To do this, you must know your generator category and its requirements.



NOTE: Over accumulation can be a serious threat to the environment and safety. DHW inspectors find this is a common violation among SQGs.

Am I Labeling My Hazardous Waste Correctly

Every container and tank accumulating hazardous waste must be labeled with:

- the words HAZARDOUS WASTE
- the name of the waste
- the types of hazard(s)
- the date accumulation began

This is a sample label. You may copy it or make your own.

This label is sold by Certified Business Forms at (617) 969-0550.

HAZARDOUS WASTE

examples:
oil,
acetone

examples:
toxic,
ignitable

NAME OF WASTE _____

HAZARD(S) _____

DATE ACCUMULATION BEGAN _____ / _____ /19

HANDLE WITH CARE

Keep in mind

Most of Notices of Noncompliance from Inspectors to SQGs include **Failure To Label**.

WALTON
STATION

WALTON
STATION

WALTON
STATION

Is My Hazardous Waste Accumulation Area Well Designed?

The area where you accumulate your waste must meet certain conditions. Good housekeeping - preventing leaks and spills - should be a number one consideration.

Y N

If you answer YES to *all* of the following questions, your accumulation area probably meets the design specifications in the Regulations.

If you answer NO to *any* question, correct the problem now.

Y N

Is my accumulation area clearly marked, e.g. a fence, rope, or painted boundary line?

Is a HAZARDOUS WASTE sign posted?

Is the area secured against trespassers?

Is the area located away from drains?

If liquids are accumulated, is the floor liquid tight (impervious) with no cracks or gaps?

Are there berms or dikes to separate incompatible wastes?

Additional Requirements for Outdoor Accumulation

Y N

If liquids are accumulated, is there a diked or curbed perimeter to catch any spills?

The containment capacity must be:

- 10% of the total volume of all the containers
- or
- 110% of the volume of the largest container, whichever is larger.

Additional Requirements For Storing Ignitable and Reactive Hazardous Wastes

Y N

Is the area at least 150 feet from the property line?

Is a NO SMOKING sign posted?

Have all sources of sparks been eliminated?

Are My Containers of Hazardous Waste Properly Managed?

As a generator, you must inspect your hazardous waste containers each week and keep a record of these inspections for at least 3 years. A good way to track your inspections is by maintaining a weekly checklist. You may copy the sample checklist below or design your own.

Directions

Each week enter the date and your initials. If you do not identify a problem, make a ✓ under the appropriate item in the log. If you do find a problem, place an X under the item to note that it needs correction. Record the date the deficiency was corrected in the last column.

Sample Container Checklist

Date/ Name	Containers closed	Containers labeled	Containers in good condition	Floor is clean	Aisles clear	Date of corrections
3/6/89 SKL	✓	✓	✓	X	X	3/7/89
3/13/89 SKL	✓	✓	✓	✓	✓	

Good Condition - No sign of:

leaks	pitting	bulging
seam separation	corrosion	cracking
deterioration	denting	

Clean- The floor shows no signs of spills or debris.

Aisles - Wide enough for each container to be inspected. (Ignitable and reactive hazardous waste must also meet guidelines set by the National Fire Protection Association's Code.)

See the reverse side for a weekly container checklist form you can use. 

Weekly Container Check List

Date/ Name	Containers closed	Containers labeled	Containers in good condition	Floor is clean	Aisles clear	Date of corrections

NOTE: EMPTY CONTAINERS which held hazardous products or wastes may be discarded in the trash.

- After you emptied as much of the contents as possible is there less than ONE INCH OF RESIDUE left in the container?
- If you are discarding a container that contained compressed gas has the pressure been relieved?
- If you are discarding a container that held acutely hazardous chemicals (the "P" list in the Regulations) you will need more information on special rinsing requirements. Call 292-5898.

How Can I Test Waste Oil Tanks For Leaks?

To be sure your underground waste oil tank is not leaking you must take monthly measurements of the waste in the tank and maintain monthly inventory records.

- Skip this page if:**
- you have no waste oil tanks on the ground or underground, or
 - your waste oil tanks have secondary containment *and* leak detection equipment

- Designate:**
- an employee to do this test on a specific day of the month and
 - a place to file these records for at least 3 years

Directions

- Every 30 days enter the date and your initials.
- Measure the waste in your tank with a dip-stick. Record measurement, and seal the tank.
- 24 hours later, measure again and record.
- Subtract day 2 measurement from day 1 to calculate the difference and record.
- If the difference is over 1/2 inch, immediately report it to the DEQE and your fire chief. Record the date and names of people who took the report.*

NOTE: Every 12 months this same test must be conducted, but the tank must be sealed for a 48 hour period between measurements.

SAMPLE LOG

A	B	C	D	E
Date/ Name	Day 1 measurement	Day 2 measurement	Difference in inches	Date reported
3/7/89 SKL.	35.6'	35.6'	0	
4/4/89 SKL.	50.5'	50.5'	0	
5/2/89 SKL.	61'	59.5'	1.5	5/2

*My Regional DEQE Office telephone number is _____.

My Local Fire Department telephone number is _____.

See the reverse side for a Waste Oil Tank Log form you can use. 

Monthly Underground Waste Oil Tank Log

A	B	C	D	E
Date/ Name	Day 1 measurement	Day 2 measurement	Difference in inches	Date reported

NOTE: Every 12 months seal the tank for 48 hours (instead of 24 hours) between measurements.

Am I Prepared For Emergencies?

As a SQG you are required to prepare for emergencies. Here are some of the questions you should ask yourself.

Y N

- Do I have an alarm or other communication system for instructing staff?
- Do I have a telephone, two-way radio or other device for contacting the police, fire or emergency response team?
- Do I have portable fire extinguishers and/or fire control equipment?
- Is there adequate water supply and pressure; automatic sprinkler, water spray, or foam producing equipment?
- Do I periodically test and properly maintain the equipment so it will be working in case of an emergency?
- Have I instructed each employee in emergency procedures?
- Have I clearly marked all exits?
- Have I posted the emergency phone numbers and an evacuation plan?
- Have I contacted the police and fire departments, the local board of health and any emergency response teams with information about my hazardous waste?
(See sample letter on page 37.)

Evacuation Plan

You can meet this requirement with a floor plan of your plant showing:

- Areas where employees may be working.
- Evacuation routes, entrances, exits.
- Alarm, telephone.
- Water faucets, hoses and fire hydrants.
- Areas where hazardous waste and hazardous products may be located.
- Emergency equipment, e.g. fire extinguisher, shovel, overpack drum, absorbent materials.

(See sample plan on page 37.)

In Case Of Emergency

My Company's Emergency Coordinator () -
name: _____

My Back-Up Coordinator () -
name: _____

Local Fire Department () -

Regional DEQE Office () - *

NATIONAL RESPONSE CENTER (800) 424 - 8802

* If DEQE is closed call STATE POLICE (617) 566 - 4500

EPA Identification Number: MA _____

Evacuation Route
Facility floor plan showing emergency exits.

Use this for Posting in your business.

Sample Hazardous Waste Notification Letter

Z *XYZ PRINTING*
12 A Street
Anywhere, Massachusetts 02373

January 15, 1988

Dear Sir/Madame:

This letter is to inform you that XYZ Printing is a small quantity generator of hazardous waste according to the Massachusetts Hazardous Waste Regulations. We are located at 12 A Street, Anywhere, Massachusetts. Our operation consists of a 3500 square foot office and print shop, and an attached hazardous waste accumulation shed. The hazardous wastes generated are:

Waste ink, ink sludge and rags
Spent petroleum naphtha and acetone
Photographic waste containing sliver

Initially we collect the hazardous wastes in small containers located inside the print shop where they are generated. When the containers are full, we empty them into 55 gallon drums located in the hazardous waste accumulation shed. The shed is locked with a steel gate which prevents unauthorized entry, allows visual observation and ventilation.

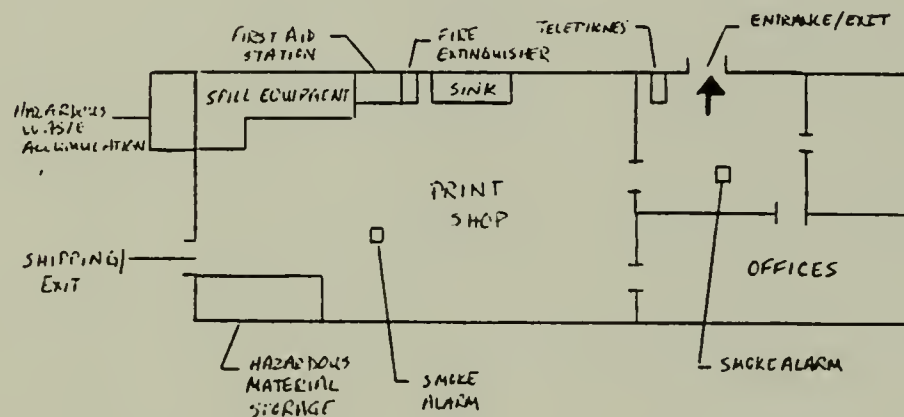
All hazardous waste generated are handled in accordance with the regulations and disposed of off-site by a licensed transporter. In case of an emergency, the company is equipped with smoke and fire alarms, fire extinguishers, first aid supplies, and water sources as shown in our evacuation plan below.

We are providing you with this information in case of an emergency. Jack Brown is our emergency coordinator, he can be reached at work (617) 786-5642 or home (617) 892-5678. Please give him a call if you have any questions or would like additional information.

Respectfully yours,

Jane Doe
Jane Doe
President

12 A STREET



cc Fire Department
Police
Board of Health
Emergency Response Team (if applicable)

Hazardous Waste Disposal

What Should I Do About the Transport and Disposal of My Hazardous Waste?

As a generator YOU ARE LIABLE for your hazardous waste. It is important that you know where your waste is going and that it is handled safely. You can be held responsible for clean-up expenses if your waste is mismanaged on your premises as well as after it is removed - "from cradle to grave."

Be aware:

- Hazardous waste transporters must be licensed by the Division of Hazardous Waste to pick-up hazardous waste in Massachusetts.
- The transporter's license will specify what kind of hazardous wastes that company is permitted to handle.
- The transporting company must have driver training, a \$10,000 bond, \$1 million insurance, safety equipment, and a VID (vehicle identification device) in each truck.
- The law requires transporters to know what waste they are handling. In most cases this means the generator's waste will have to be analysed or tested.
- It is your responsibility to choose a treatment or disposal facility that can accept your kind of waste. The transporter may help with this choice or you may call the DHW Licensing Branch for assistance, (617) 292-5851.

On page 41, is a questionnaire you may use to record information you need to know for each transporter you are considering.

Transporter Questionnaire

You may find these questions helpful when selecting a Transporter.

Transporter Name _____

Address _____

Contact _____ Telephone _____

Are you licensed by the Massachusetts Division of Hazardous Waste?

YES _____ License Number: _____ NO _____

Are you licensed to handle my type of waste? _____ YES _____ NO
(Specify your wastes to the transporter.)

Do you help Small Quantity Generators to
get an EPA Identification Number? _____ YES _____ NO

label the waste to fulfill the DOT Requirements? _____ YES _____ NO

obtain and complete the manifest? _____ YES _____ NO

Will you take my waste in containers? _____ YES _____ NO
(The transporter may pump the waste into his truck.)

Do you analyze the waste? _____ YES _____ NO *If yes,*

How often will you want it tested? _____

How much does the analysis cost? _____

Will you pick-up small amounts of waste? _____ YES _____ NO

Will you provide on-call service? _____ YES _____ NO

Who will be my contact for future service? _____

What are your total charges? _____ Are there any add-on costs? _____

NOTE: Generators or trade associations who are considering organizing a "milk run" should ask if the transporter will give discounts to groups that have waste ready for pick-up the same day.

Who is Required to Use a Manifest?

All generators shipping hazardous waste through a licensed transporter are required to submit the appropriate copies of manifests to DEQE and other state environmental agencies. It is the generator's responsibility to fill out and distribute manifests properly.

Note: companies must also manifest hazardous waste produced from leased materials, eg., waste solvents from a parts washer.

Why Use a Manifest?

Massachusetts and federal laws require that the DEQE track hazardous waste from "cradle to grave" or from the point where the waste was generated to its final destination. The manifest allows the generator to track the waste during shipment, to ensure that it arrives at its proper destination, which is a treatment, storage, or disposal facility.

If the generator does not receive a signed manifest copy from the destination facility within 35 days of the shipment date, it is the generator's responsibility to determine why the shipment did not arrive at the designated facility.

If the shipment does not arrive at the designated facility within 45 days, the generator must file an *exception report* with the state environmental agency. Under the Superfund Law, generators are always potentially liable for any mismanagement of their hazardous waste. Generators are also liable under the Massachusetts Hazardous Waste Management Act, MGL Chapter 21C, for improper handling of their hazardous waste. While the manifest functions as an enforcement tool, it also contains valuable information that may be critical to emergency response personnel if an accident occurs.



Where are the Eight Copies of the Manifest Form Sent?

Detailed instructions for distributing manifest copies are on the back of the manifest form, but a basic explanation of the distribution breakdown is as follows:

Note: copy distribution may vary from state to state.

The Manifest Tracking System - Who does what? Who gets what?				
	Massachusetts Generator	Transporter	Designated Facility	Comments
Copy 1			If designated facility is in Mass., facility mails copies 1 and 2 to DEQE/DHW*	If designated facility is outside of Mass., facility mails copy 1 to state where facility is located and mails copy 2 to DEQE/DHW*+.
Copy 2				
Copy 3	Retains in files for at least three years.		Mails to generator confirming that the waste has reached its destination.	Copy must be returned to generator within 35 days from the shipment date.
Copy 4			Retains in files for at least 3 years.	
Copy 5		Retains in files for at least three years.		
Copy 6	If designated facility is in Mass., generator mails to DEQE/DHW*.			If designated facility is outside of Mass., copy 6 is mailed to state where facility is located + .
Copy 7	Generator mails to DEQE/DHW*.			
Copy 8	Generator retains in files for at least three years.			

* DEQE/DHW
Manifest Section
1 Winter Street
Boston, MA 02108

+ See appendix B for
out-of-state envi-
ronmental agency
addresses.

What Manifest Do I Use When Shipping My Hazardous Waste?

The manifest form you use depends on where your receiving facility is located.

- If you are shipping your waste to a facility in **Massachusetts**, you must use the Massachusetts manifest form.
- If you are shipping your waste to a facility in **Connecticut, Maine, Rhode Island, Vermont, or New Hampshire**, you must use either the Massachusetts manifest form or the receiving state's manifest form.
- If you are shipping your waste to a facility in **Alabama, Arkansas, California, D.C., Delaware, Illinois, Indiana, Maryland, Michigan, Minnesota, Missouri, New Jersey, New York, Ohio, Oklahoma, Pennsylvania, South Carolina, Texas, Wisconsin**, you must use the receiving states manifest form (see list of states in Appendix B for phone numbers and addresses of out-of-state environmental agencies.)
- If you are shipping your waste to a state without its own manifest form (eg., Virginia), you must use the Massachusetts manifest form.

Where Can I Purchase Manifests?

Generators can usually obtain blank copies of manifests from their transporters, but if the transporter is unable to provide these forms, Massachusetts manifests can be purchased from the following companies:

Certified Business Forms, Inc.
Newton, MA
(617) 969-0550

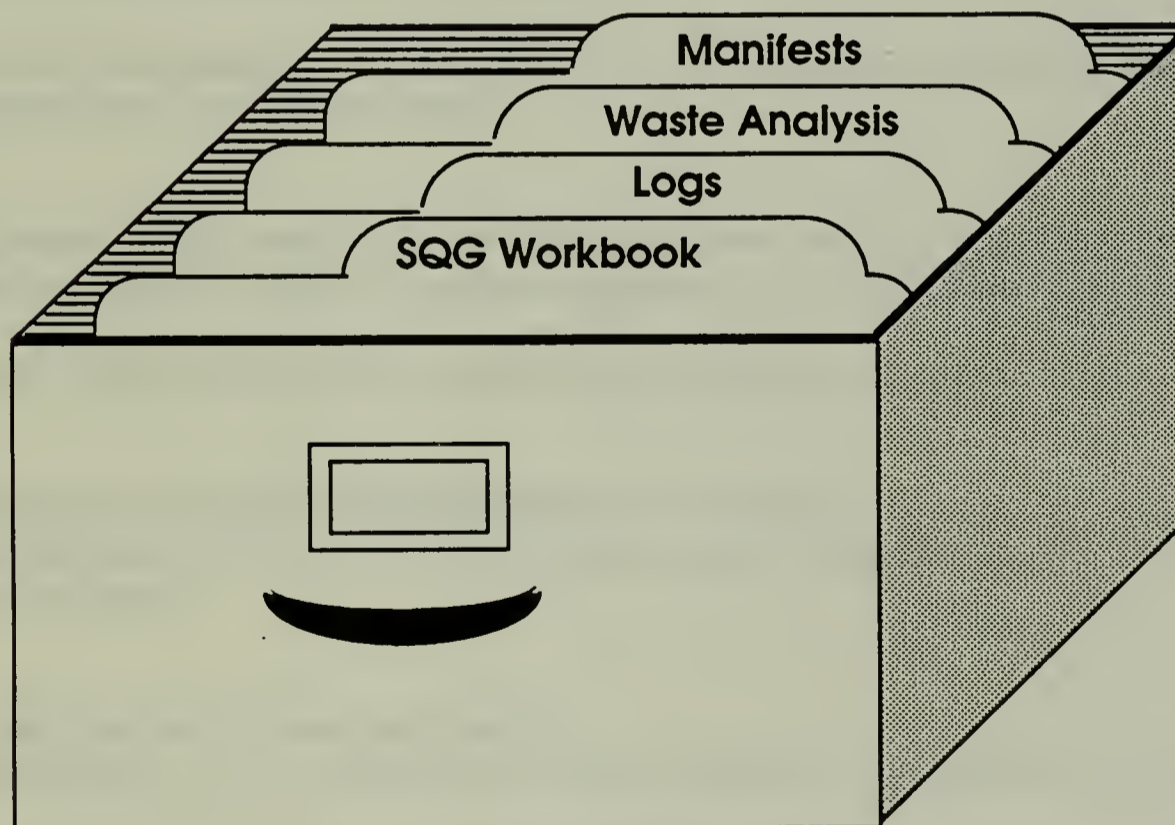
Unified Data Products
Nashua, N.H.
(603) 889-2192 or 1-800-284-FORM

Recordkeeping

Good Recordkeeping is to Your Benefit!

As a generator, you are required to keep on file your EPA identification number and manifest copies 3 and 8, for all of your hazardous waste shipments. But, it is to your advantage to organize any information pertaining to your hazardous waste so that it is readily available when you need it...as when an inspector asks to see it. Keep all of this information in one filing area.

- **Hazardous waste transporters**
- **Waste analysis**
- **Checklists and logs suggested in this workbook**
- **Emergency information**
- ***MSDS sheets**
**required under the MA Right to Know Law*



What Happens When The DHW Inspector Arrives?

DHW personnel have the authority according to MGL c. 21C to inspect any business or commercial operation which is known to handle hazardous waste or which the DHW has reasonable cause to believe handles hazardous waste. Here are some tips on what goes on during an inspection.

Inspectors arrive unannounced, but do not panic.

In addition to detecting violations an inspector may provide educational materials and advice, such as:

- Suggest ways to increase the safety of your operation, decrease worker exposure to hazardous chemicals, and minimize your costs.
- Alert you to other environmental laws that may apply to you.

Upon entering your operation the inspector:

- Introduces him/herself to the receptionist and shows DEQE identification.
- Asks to see the person in charge of daily operations; e.g., the plant manager, general manager or foreman.

The inspector will explain the purpose of the inspection and ask you for:

- Records on your hazardous wastes.
- A verbal description of your operation, its processes, products, and the types and quantities of wastes produced.

The inspector will want to tour the premises with you to observe:

- The operations, areas of waste accumulation in containers and tanks.
- Areas where products are stored and possibly the outdoor areas.

When violations of 310 CMR 30.000 are detected:

- The inspector will record the problems, point them out to you, and explain how to correct them.

The inspection will conclude with:

- A discussion of any hazardous waste management problems or violations.
- A review of the requirements you need to meet and possibly a description of the steps you need to take.

You will receive a written record of the inspection, and the results through the mail.

For More Information

Congratulations!

You have completed the SQG Workbook. You should now have an understanding of hazardous waste and how to manage it legally and safely. We know it can get complicated. So, if you have questions, contact the DHW office located in your region (see next page) or call our Industry Assistance Line in Boston, (617) 292-5898. Forms, factsheets and a 16 page summary of SQG requirements can be obtained free of charge.

Here are other resources you may find helpful:

AGENCY

TYPE OF INFORMATION

Board of Health

What can go in the local landfill?

Local Sewer Authority

What can go into the sewer or storm drain?

Dept. of Occupational Hygiene

How do I provide Right-to-Know training for employees?
(617) 969-7177

Fire Department

How do I store ignitable/reactive materials?

Department of Environmental
Management

How do I minimize wastes?
(617) 727-3260

Department of Environmental Quality Engineering

Air Quality Control

Air quality standards.
(617) 292-5630

Hazardous Waste Site Cleanup

For emergencies call your Regional DEQE Office.
For general information on Superfund sites, the Massachusetts Contingency Plan, and reportable quantities call (617) 556-1071 or 292-5907.

Right-to-Know

General information.
(617) 292-5810

Solid Waste

Disposing of solid and special wastes such as asbestos and construction debris.
(617) 292-5960

Water Pollution Control

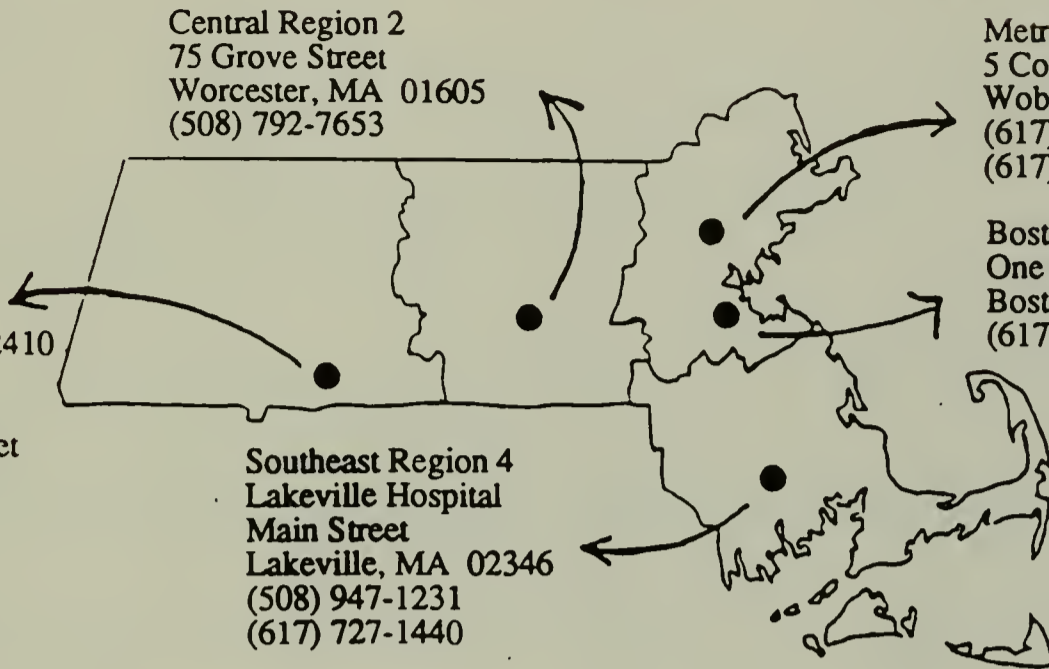
Nonhazardous wastewater discharge permits.
(617) 292-5673

Wetlands and Waterways

Is it a protected area? Do I need a license or permit for building, filling, dredging or other activities?
(617) 292-5518

Other important telephone numbers:

How to Contact DEQE



Central Region 2
75 Grove Street
Worcester, MA 01605
(508) 792-7653

Metro Boston / Northeast Region
5 Commonwealth Avenue
Woburn, MA 01801
(617) 935-2160
(617) 727-5194

Western Region 1
P.O. Box 2410
Springfield, MA 01101 - 2410
(413) 784-1100

Boston
One Winter Street
Boston, MA 02108
(617) 292-5500

Location: 436 Dwight Street
Springfield, MA 01103

Southeast Region 4
Lakeville Hospital
Main Street
Lakeville, MA 02346
(508) 947-1231
(617) 727-1440

Western Region 1

- | | | | |
|-----------------|---------------|----------------|------------------|
| Adams | Florida | Monroe | Shelburne |
| Agawan | Gill | Montague | Shutesbury |
| Alford | Goshen | Monterey | Southampton |
| Amherst | Granby | Montgomery | South Hadley |
| Ashfield | Granville | Monson | Southwick |
| Becket | Gr.Barrington | Mt. Washington | Springfield |
| Belchertown | Greenfield | New Ashford | Stockbridge |
| Bernardston | Hadley | New Marlboro | Sunderland |
| Blanford | Hampden | New Salem | Tolland |
| Brumfield | Hancock | North Adams | Tyringham |
| Buckland | Hatfield | Northampton | Wales |
| Charlemont | Hawley | Northfield | Ware |
| Cheshire | Heath | Orange | Warwick |
| Chesterfield | Hinsdale | Otis | Washington |
| Chicopee | Holland | Palmer | Wendell |
| Clarksburg | Holyoke | Pelham | Westfield |
| Colrain | Huntington | Peru | Westhampton |
| Conway | Lanesboro | Pittsfield | West Springfield |
| Cummington | Lee | Plainfield | West Stockbridge |
| Dalton | Lenox | Richmond | Whately |
| Deerfield | Levcritt | Rowe | Wilbraham |
| Easthampton | Leyden | Sandisfield | Williamsburg |
| East Longmeadow | Longmeadow | Sandisfield | Williamstown |
| Egremont | Ludlow | Savoy | Windsor |
| Erving | Middlefield | Sheffield | Worthington |

Central Region 2

- | | | |
|-----------------|------------------|-----------------|
| Acton | Hopedale | Princeton |
| Ashburnham | Hopkington | Royalston |
| Ashby | Hubbardston | Rutland |
| Athol | Hudson | Shirley |
| Auburn | Holliston | Shrewsbury |
| Ayer | Lancaster | Southboro |
| Barre | Leicester | Southbridge |
| Bellingham | Leominster | Spencer |
| Berlin | Littleton | Sterling |
| Blackstone | Lunenburg | Stowe |
| Bolton | Marlboro | Sturbridge |
| Boxboro | Maynard | Sutton |
| Boylston | Medway | Templeton |
| Brookfield | Mendon | Townsend |
| Charlton | Milford | Tyngsboro |
| Clinton | Milbury | Upton |
| Douglas | Millville | Uxbridge |
| Dudley | New Braintree | Warren |
| Dunstable | Northboro | Webster |
| East Brookfield | Northbridge | Westboro |
| Fitchburg | North Brookfield | West Boylston |
| Gardner | Oakham | West Brookfield |
| Grafton | Oxford | Westford |
| Groton | Paxton | Westminster |
| Harvard | Pepperell | Winchendon |
| Hardwick | Petersham | Worcester |
| Holden | Philipston | |

Metro Boston / Northeast Region 3

- | | | | |
|------------|------------|---------------|--------------|
| Amesbury | Essex | Merrimac | Saugus |
| Andover | Everett | Methuen | Sherborn |
| Arlington | Framingham | Middleton | Somerville |
| Ashland | Georgetown | Millis | Stoneham |
| Bedford | Gloucester | Milton | Sudbury |
| Belmont | Groveland | Nahant | Swampscott |
| Beverly | Hamilton | Natick | Tewksbury |
| Billerica | Haverhill | Needham | Topsfield |
| Boston | Hingham | Newbury | Wakefield |
| Boxford | Holbrook | Newburyport | Walpole |
| Braintree | Hull | Newton | Waltham |
| Brookline | Ipswich | Norfolk | Watertown |
| Burlington | Lawrence | North Andover | Wayland |
| Cambridge | Lexington | North Reading | Wellesley |
| Canton | Lincoln | Norwood | Wenham |
| Carlisle | Lowell | Peabody | West Newbury |
| Chelmsford | Lynn | Quincy | Weston |
| Chelsea | Lynnfield | Randolph | Westwood |
| Cohasset | Malden | Reading | Weymouth |
| Concord | Manchester | Revere | Wilmington |
| Danvers | Marblehead | Rockport | Winchester |
| Dedham | Medfield | Rowley | Winthrop |
| Dover | Medford | Salem | Woburn |
| Dracut | Melrose | Salisbury | |

Southeast Region 4

- | | | |
|------------------|-----------------|------------------|
| Abington | Franklin | Plympton |
| Acushnet | Freetown | Plymouth |
| Attleboro | Gay Head | Provincetown |
| Avon | Gosnold | Raynham |
| Barnstable | Halifax | Rehoboth |
| Berkley | Hanover | Rochester |
| Bourne | Hanson | Rockland |
| Brewster | Harwich | Sandwich |
| Bridgewater | Kingston | Scituate |
| Brockton | Lakeville | Seekonk |
| Carver | Mansfield | Sharon |
| Chatham | Marion | Somerset |
| Chilmark | Marshfield | Stoughton |
| Dartmouth | Mashpee | Swansea |
| Dennis | Mattapoisett | Taunton |
| Dighton | Middleboro | Tisbury |
| Duxbury | Nantucket | Truro |
| Eastham | New Bedford | Wareham |
| East Bridgewater | North Attleboro | Wellfleet |
| Easton | Norton | West Bridgewater |
| Edgartown | Norwell | Westport |
| Fairhaven | Oak Bluffs | West Tisbury |
| Fall River | Orleans | Whitman |
| Falmouth | Pembroke | Wrentham |
| Foxboro | Plainville | Yarmouth |

Appendix

APPENDIX A

EPA 4 Digit Waste Codes For Hazardous Wastes Commonly Generated By SQGs.

You will need the Waste Codes for your hazardous wastes for the:

- Application for a EPA Identification Number when "notifying" DEQE and
- The Manifest when shipping waste off-site.

This Appendix does not include all hazardous wastes. Citations from the Massachusetts Hazardous Waste Regulations are given if more information is needed.

Except for the pesticides and wood preserving categories, the codes are not included for commercial chemical products that are hazardous when discarded. (See page 6 for explanation of commercial chemical products.)

ACUTELY hazardous wastes are identified with an asterisk (*).

TO USE THIS APPENDIX:

1. Find your business type on page 3 to identify waste streams commonly produced by your activities. Find each waste stream in this appendix and review the more detailed descriptions and check off (✓) the wastes you actually generate in your operation.
2. Refer to your waste inventory on page 14 for any additional hazardous wastes and check them off in the appendix.
4. If you have questions, or are unable to determine the proper waste code call the DHW. We can better help you if you have the MSDS when you call.

CORROSIVES

D002 is the waste code for all corrosive materials and solutions. Acids, bases, or mixtures having a pH less than or equal to 2 or greater than or equal to 12.5 are considered corrosive. (310 CMR 30.123) Examples:

Acetic Acid	Nitric Acid
Ammonium Hydroxide	Oleum
Chromic Acid	Perchloric Acid
Hydrobromic Acid	Phosphoric Acid
Hydrochloric Acid	Potassium Hydroxide
Hydrofluoric Acid	Sodium Hydroxide
	Sulfuric Acid

Note: Leaking lead acid batteries are corrosive hazardous waste. Intact batteries are not hazardous waste nor are they counted toward your generator category when they are recycled.

DRY CLEANING FILTRATION RESIDUES

F002 is the waste code for cooked powder residue (perchloroethylene plants only), still residues, and spent cartridge filters containing perchloroethylene or valclene.

D002 is the waste code for still residues containing petroleum solvents with a flashpoint less than 140°F.

Appendix A continued

HEAVY METALS/INORGANICS

Heavy metals and other inorganic waste materials are EP Toxic if an extract from a representative sample of the waste has concentrations higher than those shown below.

<u>Contaminant</u>	<u>Concentration in milligrams per liter</u>	<u>Waste Code</u>
Arsenic	5.0	D004
Barium	100.0	D005
Cadmium	1.0	D006
Chromium	5.0	D007
Lead	5.0	D008
Mercury	0.2	D009
Selenium	1.0	D010
Silver	5.0	D011

IGNITABLE WASTES

D001 is the waste code for ignitable waste unless otherwise specified. (310 CMR 30.122) Ignitable wastes include liquids that have a flashpoint less than 140° F, any non-liquids that are capable of causing a fire through friction, absorption of moisture, or spontaneous chemical change, or any ignitable compressed gas.

Examples are spent solvents (see solvents also), solvent still bottoms, ignitable paint wastes, (paint removers, brush cleaners and stripping agents), epoxy resins and adhesives (epoxies, rubber cements and marine glues), and ink wastes containing flammable solvents. Examples:

Acetone	F003
Ethyl Ether	F003
Methanol	F003
Methyl Isobutyl Keton	F003
Petroleum Distillates	D001
Xylene	F003

PESTICIDES

The pesticides listed below are hazardous waste if discarded. Wastes marked with an asterisk (*) are classified as acutely hazardous and are regulated more strictly. (30.133 and 30.136) Note that while many of these pesticides are no longer in common use, they are sometimes found in storage.

*Aldicarb	P070
*Aldrin	P004
Amitrole	U011
*Arsenic Pentoxide	P011
*Arsenic Trioxide	P012
Cacodylic Acid	U136
Carbamic Acid, Methylnitroso-Ethyl Ester	U178
Chlorodane	U036
*Copper Cyanides	P029
1,2-Dibromo-3-chloropropane	U066
1,2-Dichloropropane	U083
1,3-Dichloropropene	U084
2,4-Dichlorophenoxy Acetic Acid	U240
DDT	U061



Appendix A continued

*Dieldrin	P037
Dimethylcarbamoyl Chloride	U097
*Dinitrocresol	P047
*Dinoseb	P020
Disodium Monomethanearsenate	D004
*Disulfoton	P039
*Endosulfan	P050
*Endrin	P051
Ethylmercuric Chloride	D009
*Famphur	P097
*Heptachlor	P059
Hexachlorobenzene	U127
Kepone	U142
Lindane	U129
2-Methoxy Mercuric Chloride	D009
Methoxychlor	D014
*Methly Parathion	P071
Monosodium Methanearsenate	D004
*Nicotine	P075
*Parathion	P089
Pentachloronitrobenzene	U185
Pentachlorophenol	U242
Phenylmercuric Acetate	D009
*Phorate	P094
*Strychnine	P108
2,4,5-Trichlorophenoxy Acetic Acid	U232
2-(2,4,5-Trichlorophenoxy)-Propionic Acid	U233
*Thallium Sulfate	P115
Thiram	U244
*Toxaphene	P123
Warfarin	U248

REACTIVES

D003 is the waste code for reactive wastes unless otherwise specified. Reactive wastes include reactive materials or mixtures which are unstable, react violently with or form explosive mixtures with water, generate toxic gases or vapors when mixed with water (or when exposed to pH conditions between 2 and 12.5 in the case of cyanide or sulfide bearing wastes), or are capable of detonation or explosive reaction when heated or subjected to shock. (310 CMR 30.124) Examples:

Chromic Acid	Perchlorates
Cyanides	Permanganates
Hypochlorites	Sulfides
Organic Peroxides	

Appendix A continued

SOLVENTS

Solvents, spent solvents, solvent mixtures, or solvent still bottoms are often hazardous. These wastes include solvents used in degreasing (code F001), and paint brush cleaning and distillation residue from reclamation. (310 CMR 30.131)

Also see ignitable.

Ethanol	D001
Isopropanol	D001
Kerosene	D001
Methyl Ethyl Ketone	F005
Naphtha	D001
Petroleum Solvents (flashpoint under 140° F)	D001
1,1,2-Trichloroethane	F002
Tetrachloroethylene (Perchloroethylene)	F001
Toluene	F005
Trichloroethylene	F001
Trichlorotrifluoroethane (Valclene)	F002
White Spirits	D001

SPENT PLATING AND CYANIDE WASTES

Spent plating wastes contain cleaning solutions and plating solutions with caustics, solvents, heavy metals and cyanides. Cyanide wastes may also be generated from heat treatment operations, pigment production and manufacturing of anticaking agents. Plating wastes are generally waste codes F006-F009, with F007-F009 containing cyanide. Cyanide heat treating wastes are generally codes F010-F012. (310 CMR 30.131).

WOOD PRESERVING AGENTS

Examples:

Chromated Copper Arsenate	D004
Creosote	U051
Pentachlorophenol	F027

APPENDIX B

MAIL COPY 6 OF THE MANIFEST TO THE DESTINATION STATE

ALABAMA

Dept. of Environmental Management
Land Division
Congressman W.L. Dickerson Drive
Montgomery, AL 36130
(205) 271-7737

ARKANSAS

Dept. of Pollution Control & Ecology
Solid & Hazardous Waste Division
P.O. Box 9583
Little Rock, AR 72219
(501) 562-7444

CONNECTICUT

Dept. of Environmental Protection
Hazardous Materials Management Unit
165 Capitol Avenue
Hartford, CT 06106
Attn: Jeanne Brennan
(203) 566-5217

ILLINOIS

Environmental Protection Agency
Division of Land Pollution Control
2200 Churchill Road
P.O. Box 19276
Springfield, IL 62794-9276
(217) 785-2361

INDIANA

Dept. of Environmental Management
Off. of Solid & Haz. Waste Mgmt.
105 South Meridian Street Box 6015
Indianapolis, IN 46206-6015
(317) 232-8603

LOUISIANA

Dept. of Environmental Quality
Office of Solid & Hazardous Waste
P.O. Box 44307
Baton Rouge, LA 70804
(504) 342-4677

MAINE

Dept. of Environmental Protection
Bur. of Oil & Haz. Mat. Control
State House - Station 17
Augusta, ME 04333
(207) 289-2651

MARYLAND

Dept. of Environment
Hazardous Waste Division
201 West Preston Street
Baltimore, MD 21201
(301) 225-5709

MICHIGAN

Dept. of Natural Resources
Waste Management Division
P.O. Box 30038
Lansing, MI 48909
(517) 373-2730

MINNESOTA

Pollution Control Agency
Hazardous Waste Division
520 Lafayette Road
St. Paul, MN 55155
(612) 296-7784

MISSOURI

Dept. of Natural Resources
Div. of Environmental Quality
Waste Management Agency
P.O. Box 176
Jefferson City, MS 65102
(314) 751-3176

NEW HAMPSHIRE

Dept. of Environmental Serv.
Waste Management Division
6 Hazen Drive
Concord, NH 03301-6509
(603) 271-2921

NEW JERSEY

Dept. of Env. Protection
Div. of Haz. Waste Management
Manifest Section - 5th Floor
40 State St. Box CN028
Trenton, NJ 08625
(609) 635-1394

NEW YORK

NYDEC
Div. of Solid & Haz. Waste
P.O. Box 12820
Albany, NY 12212
(518) 457-6858

OHIO

Env. Protection Agency
Div. of Solid & Haz. Waste
1800 Watermark Drive
Columbus, OH 43266-1049
(466) 644-2100

PENNSYLVANIA

Dept. of Env. Resources
Bureau of Solid Waste Mgmt.
P.O. Box 2063
Harrisburg, PA 17120
Attn: Manifest Section
(717) 787-6239

Appendix B *continued*

RHODE ISLAND

Dept. of Environmental Management
Division of Air & Hazardous Materials
291 Promenade Street
Providence, RI 02908-5767
(401) 277-2797

SOUTH CAROLINA

Dept. of Health & Environmental Control
J. Marion Sims Building
Bur. of Solid & Haz. Waste Management
2600 Bull Street
Columbia, SC 29201
(803) 734-5200

TEXAS

Texas Water Commission
P.O. Box 13987, Capitol Station
Austin, TX 78711
(512) 463-8175

VERMONT

Agency of Natural Resources
Hazardous Waste Management Div.
103 South Main Street, West Building
Waterbury, VT 05676
(802) 244-8702

VIRGINIA

Dept. of Waste Management
Monroe Building, 11th Floor
101 North 14th Street
Richmond, VA 23219
(804) 225-2667

WISCONSIN

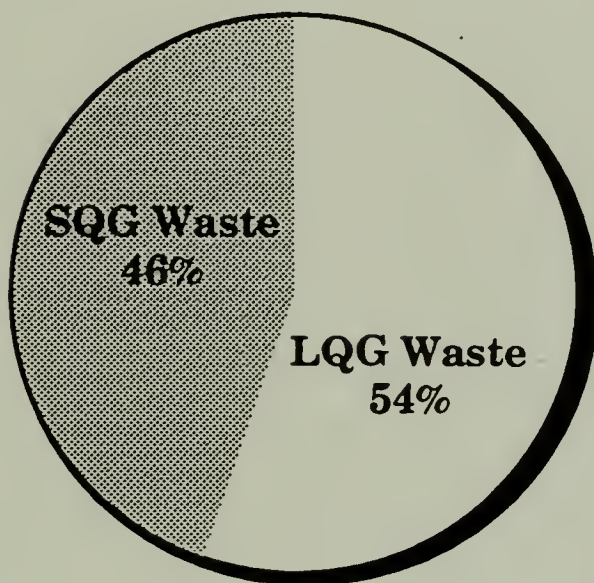
Dept. of Natural Resources
Bureau of Solid Waste Management
P.O. Box 7921
Madison, WI 53707
(608) 267-7551

After completing the manifest and transferring the hazardous waste to the transporter, the generator mails copy 6 to the state environmental agency where the designated facility is located. See box number 9 on the manifest for the designated facility location.

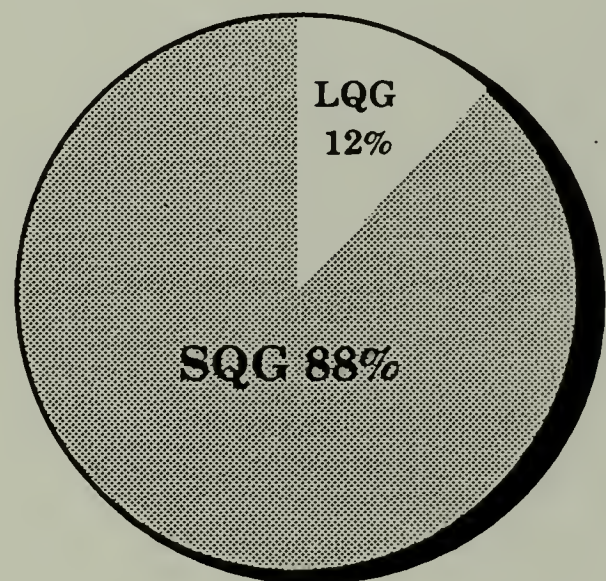
All addresses subject to change. List is best available information as of August 1988.

Did You Know That

Almost half the hazardous waste in Massachusetts is generated by SQGs



Almost 90% of the generators in Massachusetts are SQGs

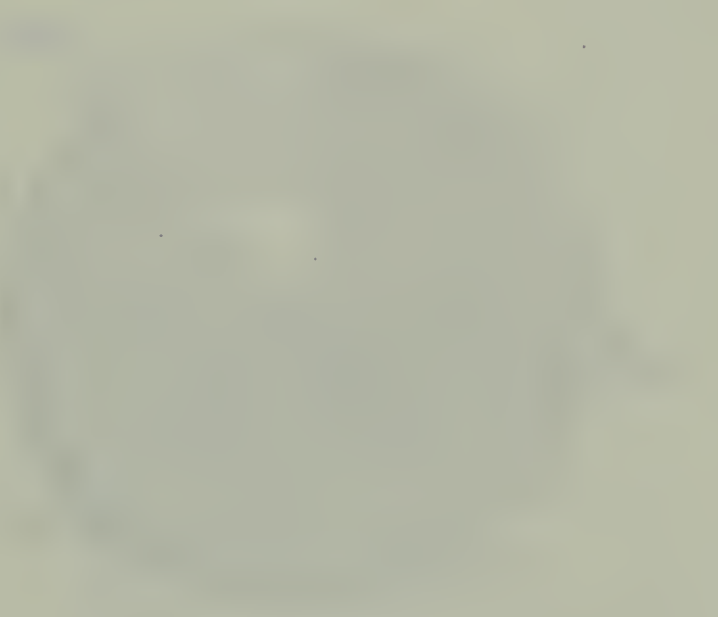


Last year

- About 407 Notices of Noncompliance were issued by hazardous waste inspectors.
- Generators' penalties ranged from \$750 - \$21,800

PHYSICS 354
LECTURE 10
SPECIAL RELATIVITY

THE SPECIAL THEORY OF RELATIVITY
AND THE GALILEAN TRANSFORMATION



THE GALILEAN TRANSFORMATION
RELATIONSHIP BETWEEN INERTIAL FRAMES
AND THE SPEED OF LIGHT



